Excavations at Glasgow Cathedral: A Preliminary Report on the Archaeological Discoveries made in 1992-93

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SUMMARY

Extensive archaeological excavations were conducted in advance of the installation of a new heating and electrical system for the Cathedral. Trenches were located where new ducts were to be installed below the floor in the Nave, the Choir, the Crypt and the Session Room. These trenches produced evidence for both of the documented 12th century cathedrals which preceded the existing building. The early cathedrals were represented by in situ *masonry and decorated fragments of masonry which had been re-used in the thirteenth century works. Traces of activity pre-dating the 13th century were discovered in the west end of the Nave and structural evidence for the internal divisions of the post-Reformation use of the Nave was also recovered.*

Burials and stray human bones were found in the trenches dug in the Crypt and the Nave. In total 77 burials were excavated, most of which can be reasonably well dated. In the Nave, evidence for burial pre-dating the 12th century cathedral was recovered and it could be seen that burials were made at sporadic intervals until the 19th century.

Apart from the architectural fragments and coffin fittings, finds were scarce. The most significant artefactual discovery consisted of two massive medieval bronze mortars and an iron pestle which had been deposited in a pit in the Crypt, probably during the Reformation.

THE ARCHAEOLOGICAL STRUCTURES

The excavation trenches were located in those areas where the new heating ducts were planned. This called for six trenches to be excavated, one in the Choir, two in the Crypt, one across the north Crypt stair leading into the Session Room and two running the length of the Nave. The location of the trenches and the setting of the cathedral in modern Glasgow are indicated in Figure 2.

The Crypt (Figure 4)

Two trenches were dug in the Crypt, both running north-south. The East trench was located just to the west of the Lady Chapel and the West was located immediately to the west of the plinth marking the location of the tomb of St. Mungo. The depth of the excavations here (as elsewhere) was only taken to a level sufficient to accommodate the proposed ducts, which was about 1.1 metres below the floor slabs. The trench width was nominally 1.2 metres but the actual trench shape was determined by the run of the floor slabs and was generally much wider.

In the East trench, clearing the sand which bedded the floor slabs immediately revealed the location of two burials and three massive rubble foundations for the existing 13th century structure. The north and south foundations carried the main aisle columns which in turn carry the main piers of the Choir thus supporting the entire cathedral to its full height. Both foundations were extremely substantial walls built in straight-sided trenches which extend well into compacted natural sand subsoil. These foundations were only exposed to a depth of about 1 metre but presumably extend to some considerable depth. The construction was of hot lime poured around roughly coursed white sandstone blocks. Many of these blocks were reused fragments of masonry salvaged from the earlier ecclesiastical buildings on the site. Material from both of the two 12th century cathedrals is probably present. The centre foundation was broader but less substantial being only 0.8 metres deep. The shallowness can be explained by the fact that it was intended to carry some of the central columns of the Crypt which only support the vaulting and the Choir floor. It too contained re-used architectural masonry.

There was so little space between these three

FIG. 1 View of Nave excavations.

foundations that few burials were placed here. Indeed only to the north of the central foundation was there enough room to allow burial. All of these graves date to the early 19th century, before the repaving of the Crypt in the 1850s. The low level of burial activity had the benefit of leaving largely undisturbed a pit which had been dug hard up against the column in the north-east of the trench. This pit contained the two medieval bronze mortars of exceptional size and quality as well as an equally massive iron pestle. These finds are discussed below (see Figures 10 and 11).

In addition to the hoard of bronze, evidence of pre-burial activity consisted of stone-filled pits. One between the central and the southern foundations apparently pre-dates the 13th century work. The contents of the pits gave no clue as to their function.

In the West trench in the Crypt, the removal of the slabs and the bedding sand again revealed the north and south foundations, but there was no central foundation. As a result a greater number of graves had been placed here, in close proximity to the location of St. Mungo's tomb. Most of these burials belong to the earlier 19th century, judging from the coffin fittings. However, fragments of two burials in dug graves (ie lacking coffins) survived between the later graves and they could be medieval.

In addition to the recent burials, the backfilled excavations of Peter MacGregor Chalmers from 1898 ran through our trench. His excavations consisted of straight-sided trenches presumably laid out to run along the north and south sides of St Mungo's tomb. Both appeared extremely deep (the north trench still had timber shoring in place). They were emptied to a depth of about 1.5 metres, but were not bottomed. MacGregor Chalmers claimed to have encountered evidence of an apse enclosing the tomb of St Mungo (1905) but we found no evidence for this nor indeed was any other structural feature relating to the tomb encountered. As far as could be seen, the tomb setting appears to rest directly on the natural sand subsoil. If there are any foundations or a setting for the tomb, they do not project beyond the edge of the slight platform defined by the four columns. Certainly the case for arguing that the location of the tomb marks an earlier, possibly original, burial place for the saint remains not proven.

The Nave

Two trenches were excavated in the central part of the Nave, just inside the main piers (see Figure 6). Although the needs of the heating engineers stipulated a trench about 1.2 metres wide by 1.1 metres deep, there were opportunities to expand the trenches to investigate particular features. As expected there were quantities of burials, which can be seen to fall into several distinct phases and, as hoped for, there was evidence of the major building works dating to the 12th, 13th and 17th centuries. The natural slope of the site begins to fall away quite sharply to the east, about midway along the Nave. Thus the archaeological levels containing interesting deposits, which is to say those below the burials, were immediately below the paved floor in the west end and became increasingly deeper until near the crossing the excavations approached a depth of 3 metres below the floor level.

At the extreme west end of the Nave where the natural ground surface lay just a few inches below the floor slabs a series of features pre-dating the cathedral survived. Here we observed the presence of two drainage ditches, a hearth and several minor features all of which pre-date the later 13th century construction of the west end of the church (see Figure 6, phase 1). These features were also overlain by some of the burials, which may place this activity in the 11th century, if not earlier. No datable finds were recovered from these features, but soil samples taken from them should help to clarify their function and may provide material for radiocarbon dating.

Constraints of time forced us to concentrate our attention on those critical points where different structures were located. In the North trench two areas were investigated to some depth: the area between the third and fourth columns from the crossing and the extreme east end of the trench near to the crossing. In the South trench our special attention was directed towards the area between the third and fouth columns. Elsewhere we confined our attentions to excavating the burials and any features which were threatened by the construction of the duct. The majority of the length of these trenches remained unexamined below a depth of about 1.2 metres.

In both trenches the areas around the third column were primarily of interest because several phases of building work came together here. It is

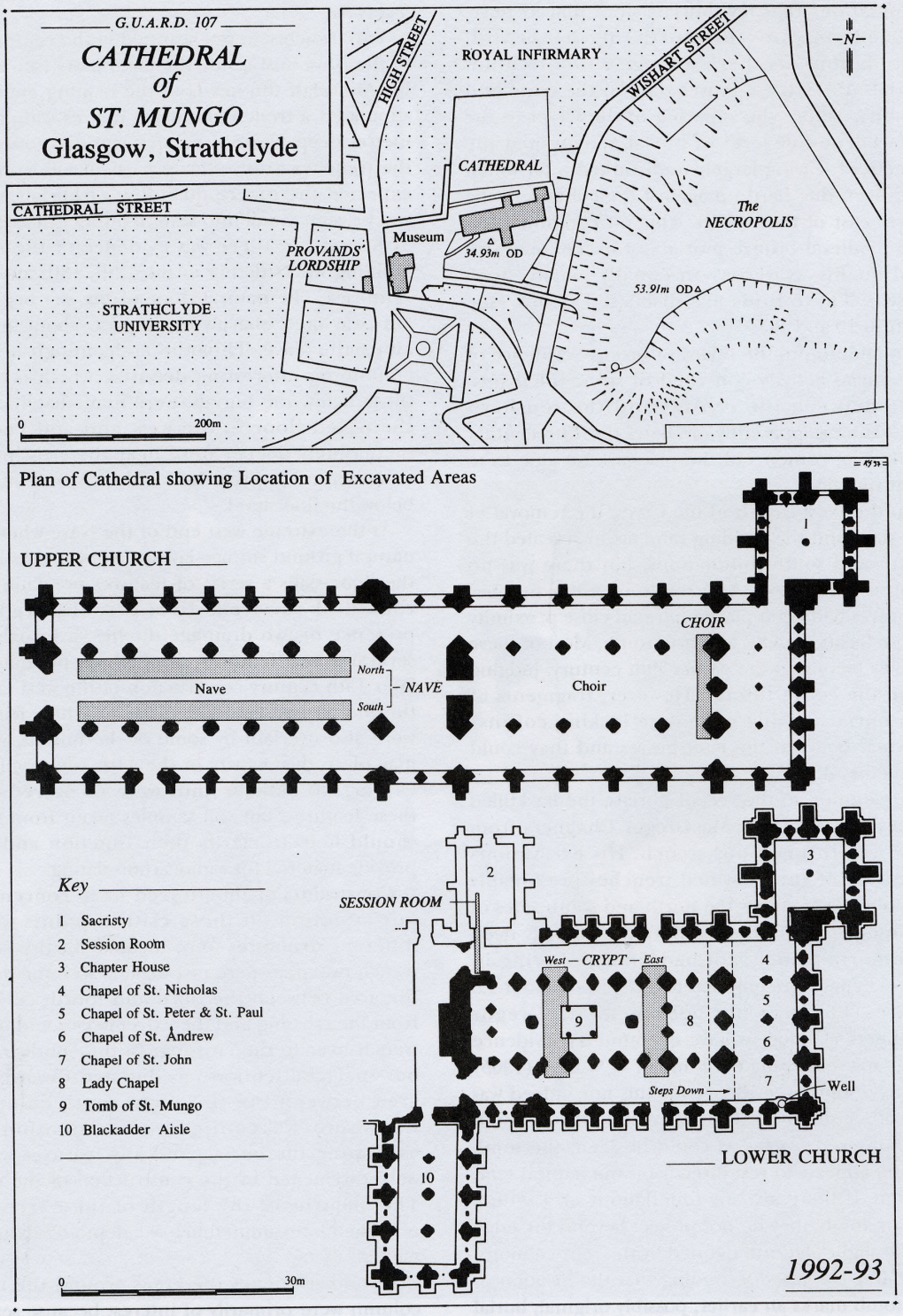

FIG. 2 Location Plan.

here that evidence for the first documented cathedral was observed. Only the bottom courses of a red sandstone wall with its chamfered plinth and rubble core survived (see Figure 6, phase 2 and Figure 3). This wall runs north-south with the chamfered plinth on its west face, so it is likely to be the west front of the cathedral built during the episcopate of Bishop John and consecrated in 1136 (Fawcett 1985 provides the most up to date chronology for the construction of the cathedral, but see also Radford and Stones 1964). Apart from the plinth, the only feature in the wall was a simple projecting buttress, which may either mark the corner of the building or be a mid-wall strengthening. In addition to this *in situ* masonry, the earliest cathedral is represented by re-used masonry noted in later builds (see below).

FIG. 3 Chamfered plinth of wall presumed to be the west front of John's Cathedral seen in the North trench. It can be seen to cut a grave and is in turn cut by the foundations of the 13th Cathedral on the left and behind on a similar alignment by the east wall of the Outer Kirk.

The second, more substantial set of remains overlay the buttressed wall and probably represent the second cathedral begun about 1181 under the guidance of Bishop Jocelin. The second set of remains included two east-west running walls which survive as the foundations supporting the piers of the nave (see Figure 3, phase 3). In the north arcade this foundation wall was longer and underpins the three eastern piers, while in the south arcade only the easternmost pier is underpinned by the old wall. This apparently conforms to the normal pattern, in which the north wall was built first for protection from the weather. The shorter south wall strongly suggests that the nave of this second cathedral was never completed (although a second consecration took place in 1197). The grandeur of this second cathedral wall is hinted at by the finely dressed and laid white sandstone blocks, which are perhaps not quite regular enough to be described as ashlar. This irregularity is understandable since some of the masonry was clearly re-used, presumably having been recovered from Bishop John's first cathedral, and was always intended to serve as foundations. Most conspicuous were the half-column drums visible in the top course of the wall (see Figure 5), but there are also re-used pieces of moulded stones and several stones with masons' marks.

If these east-west running walls were indeed part of Bishop Jocelin's cathedral, then his nave must have remained unfinished and these traces only survive because they were retained to serve as footings for the third and final cathedral begun in the 13th century and probably completed by about 1300. Nevertheless they provide a further hint to the scale of Jocelin's cathedral. The walls are quite substantial and at the crossing there is over 2.5 metres of finished masonry between the foundation and the modern floor level. It seems likely that the modern floor is at approximately the intended level for Jocelin's cathedral. This work represents the first great effort to accommodate the natural slope of the site within the building. Huge volumes of soil were deposited at the crossing to create a level surface for the floor. The quality of the masonry used, in what are essentially foundations, suggests that Jocelin's cathedral, had it been finished, would have been a grand Romanesque edifice. However, this is not so surprising when we consider that re-used column-drums from John's original cathedral suggest that

FIG. 4 Plan of Trenches in the Crypt.

FIG. 5 The Foundations of the north Nave piers using the partially demolished north wall presumed to belong to Jocelin's Cathedral of the later 12th century. This view is near the crossing where the wall was excavated to its full depth. One of the reused half-column drums (probably from John's Cathedral) can be seen as the top course of the wall.

the first was also rather grand, perhaps even an aisled basilica.

The most convincing evidence against Jocelin's nave having been finished is the lack of a west wall. For whatever reason, work on the nave was halted and the new programme of building which culminated in the present structure was initiated about 1240. This third campaign was a start and stop affair extending for most of the 13th century. The new foundations of the nave piers can be seen to consist of at least three separate builds. The most dramatic indication of this step-by-step approach can be seen in the recovery of evidence for a temporary west front midway along at the fourth pier. Here a temporary facade was apparently erected in timber. Vertical members were set in massive socketed stones which in turn were set in a substantial loose, unmortared rubble foundation laid in a trench approximately 3 metres wide by 1.5 metres deep. The rubble included masonry wasters and other sandstone blocks including a cross-head (see Figure 9).

There was little evidence for construction work in the Nave, despite evidence of repairs in the 14th and 15th centuries, until after the Reformation, when the interior was substantially remodelled to accommodate the ecclesiastical needs of the growing 17th-century burgh. A massive partition wall was erected to create a parish from the nave (Durkan 1970, 65 reproduces a 1822 engraving showing this wall). This west wall of the Outer Kirk was, by chance, located at the third pier, where it obscured the key relationship between the two 12th century builds. A number of smaller walls, which presumably served as footings for the internal partitions, were also discovered (see Figure 6, phase 7). In addition a stone platform approximately 1 metre square was found centrally positioned in the North trench between the fourth and fifth columns. It may have served as the footings for a staircase to the galleries in the aisle. These provide our only indication of the internal layout of the Kirk.

Numerous graves and disarticulated bones were encountered in the Nave (for clarity these have been omitted from Figure 6). With detailed analysis yet to be undertaken these burials can only be broken down into three broad phases of burial. The earliest cemetery consists largely of dug graves, some of which pre-date the construction of the first cathedral: the west front of John's church cuts into a grave. Whether this graveyard continued in use during the 12th century is unclear, but another burial lay under the foundations of the later 13th century work. It may be that these earliest burials are related to those encountered outside the West door during the recent excavations on the site of the towers (McBrien 1988). They certainly represent our earliest unambiguous evidence for the religious activity at this site. A more precise date for this activity will have to wait until the C-14 dates are available.

The second phase of burial consisted of interments placed within the cathedral after it had been built. Most of these were also not in coffins and in some cases are indistinguishable from the earlier burials, but an important group can be isolated. Although repeated burial and

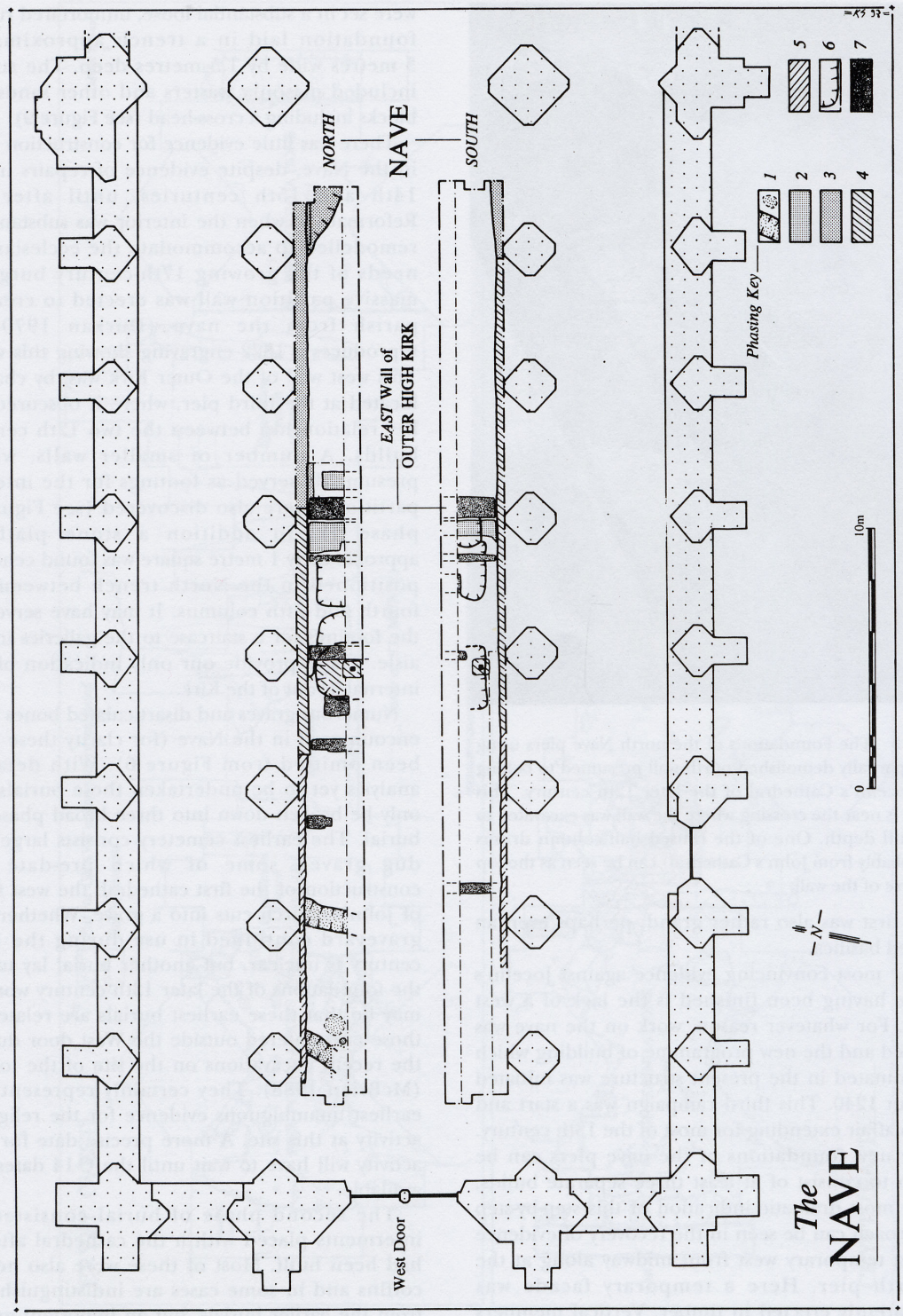

FIG. 6 Plan of Trenches in the Nave.

thus disturbance is the rule throughout the nave, three closely defined burial places were identified. These were only visible where the graves had been cut through the mortar spreads left from the 13th century construction work. In these places burials were repeatedly located with some precision in the same spot and had been placed quite deep. Most of the other burials of all ages were less than one metre below the floor level, whereas these were almost two metres deep. For convenience these three locations have been termed burial 'shafts' (see Figure 6, phase 6). These shafts are located between the arcade piers and presumably are related to the use of the altars dedicated to different saints, which were located at the nave columns (Durkan 1970). In some cases it may be possible to suggest the family or guild association of the burials in these shafts.

The third main group of burials dates to after the Reformation and is confined to the area to the east of the partition wall or the Outer Kirk in the area which, rather misleadingly, was termed the 'choir' and served as a common vestibule for the three parishes housed in the Cathedral. Presumably the pews and internal fittings made burial difficult within the Outer Kirk. These late burials were always in coffins, sometimes embellished with elaborate fittings. A significant proportion of the bodies had been treated with lime at the time of burial. The limed burials generally survived in very poor condition, if at all.

The Choir (Figure 8)

A single trench running north-south was excavated behind the present communion table and west of the columns which divide the Choir from the ambulatory. Immediately below the mortar sub-floor there were loose deposits of mortar, stone and architectural rubble. No significant archaeological structures were encountered, but amongst the rubble a number of medieval mouldings (some clearly botched) were recovered. Perhaps almost of equal interest were the fragments of carved plaster from the restoration of the work carried out in the middle of the 19th century, following the removal of the balconies from the aisles and the restoration of the original interior layout. The most interesting structural features in the trench were the tops of the vaulting to the Lady Chapel. Clearly some of these vaulting stones had projected above the original floor level and had subsequently (during the Reformation?) been trimmed. Since they originally stood proud, we must assume that they were hidden beneath a platform for the high altar or a shrine to St Kentigern.

The Session Room (Figure 8)

A small trench was excavated from the Session Room across the north stair to the Crypt. This trench was to take electrical cables (not for heating pipes) and thus was much smaller than the others. The tops of several potentially interesting structural features now embedded in the stair were exposed but not revealed sufficiently to allow them to be interpreted.

THE FINDS

A total of 187 objects have been catalogued as small finds of which by far the greatest number (105) are fragments of moulded and painted architectural masonry (see Figures 7 and 9). The large quantity of architectural stonework recovered during the excavations was one of the most welcome surprises of the excavations. The greatest amount was 12th-century masonry which had been built into the foundations of the 13th-century structure. These included simple dressed

FIG. 7 A decorated capital recovered from the 13th century foundations in the crypt.

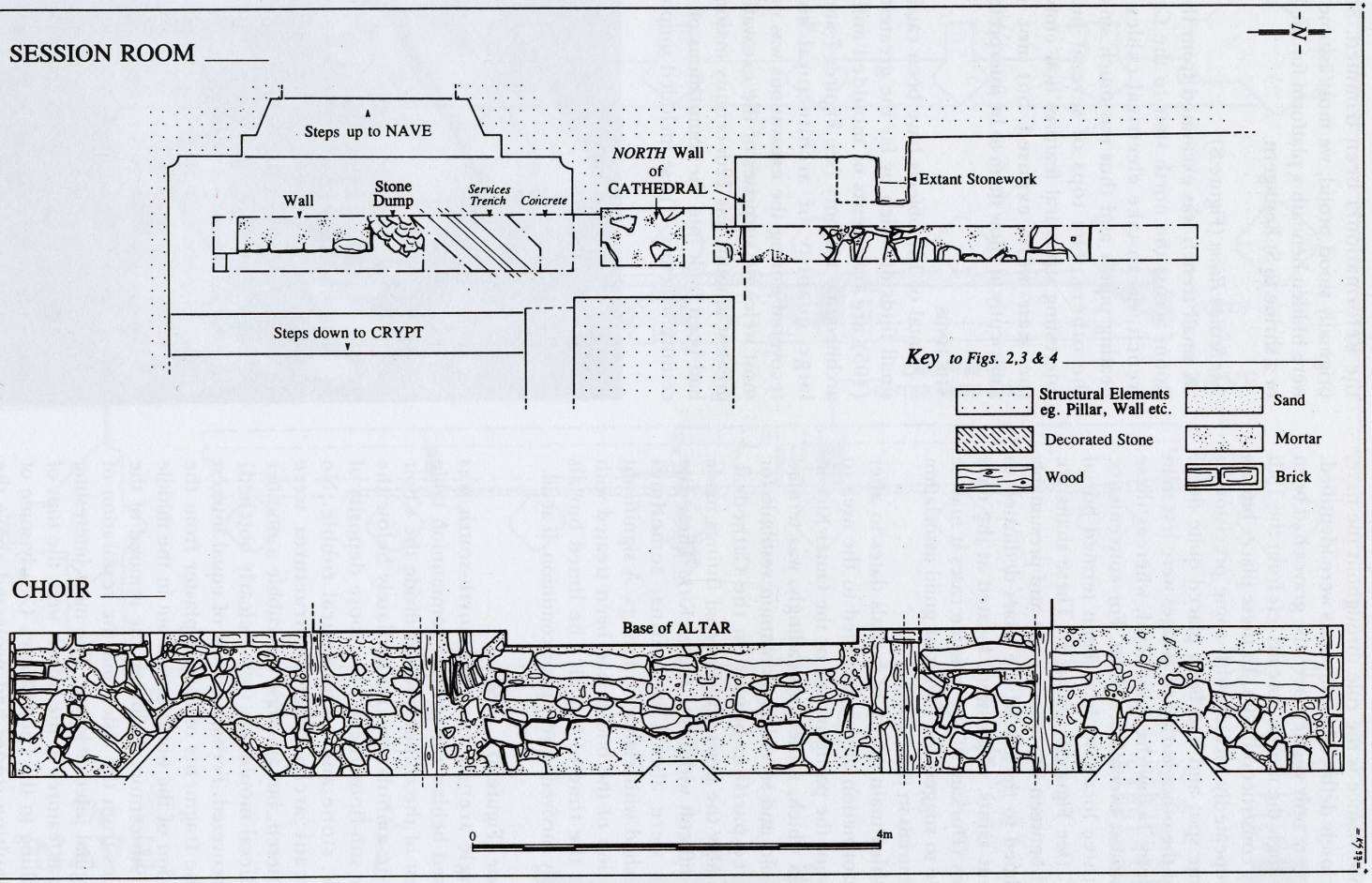

FIG. 8 Plan of Trenches in the Choir and the Session Room.

FIG. 9 Two fragments of a cross-head probably dating to the 12th century found in 13th century foundation rubble in the Nave.

blocks, column bases and caps, mouldings from openings and vaulting ribs (Figure 7). A number of these (about 20) are of considerable interest because of their carved decoration. In addition there are approximately a dozen which have painted plasterwork. The treatment of these varies from whitewash with simple red lines to portions of figurative paintings. Clearly these stones offer a great opportunity to discover some of the decorative schemes of the 12th century churches and represent one of the most valuable discoveries from the point of view of architectural history.

A fair quantity of architectural stone was also recovered from the trench in the Choir (20 pieces). Some of this material was flawed or broken at the time of its original working, as many of the fractures are sharp and clean. This group contains a number of smaller architectural fragments which may have come from screens or other furnishings.

Apart from the stones incorporated into the wall of Jocelin's cathedral including many with masons' marks, there was relatively little architectural masonry from the Nave. However, in a late 13th-century context two fragments of a round-headed cross were recovered (see Figure 9). The cross is unusual in having projecting 'ears' and has been decorated identically on both sides, one of which has been defaced. Based on a preliminary inspection Dr. Ian Fisher of the RCAHMS offered the opinion that it dates to the 11th or 12th century (pers. comm.)

The two massive bronze mortars and large iron pestle were recovered from a pit in the Crypt. Both mortars are of similar design and size but differ in detail. The smaller of the two (26 cm diameter 18 cm high) has a convex base (suggesting that it stood in some sort of stand) and iron rings at either side for lifting (see Figure 10). This mortar bears the cast inscription WIL·EL·MUS/WUSSCARD in Lombardic capitals.

FIG. 10 The smaller mortar with the cast inscription and iron rings.

William Wishart was the bishop from 1270-72. The larger one (27 cm in diameter by 19 cm high) bears no inscription beyond a maker's mark but is provided with a base and handles as well as rings, which in this case are of bronze, not iron (see Figure 11). These objects are very unusual, most surviving mortars of the period are significantly smaller, so dating them by comparison will be a problem. Preliminary indications are that they belong to the 13th or 14th century. The pestle is of wrought iron and swells in both directions gradually to bulbous ends. The shaft appears to have been originally polygonal in section, but the heavy corrosion makes it difficult to be certain.

There are no residues within the mortars, so there can be no direct evidence as to their function apart from the inscriptions. They seem rather large for either liturgical or medicinal use, so it is possible that they were used for some more 'industrial' process which would require quantities of finely pulverised materials. The location of their burial contributes greatly to our appreciation of their significance. Clearly they have been carefully placed below the floor of the Crypt. It is hard to imagine anyone doing this except for protection and it is equally difficult to imagine anyone but a member of the Cathedral chapter having the opportunity to bury anything below the Crypt floor. The most obvious occasion for taking such measures is naturally the Reformation, which would imply that the mortars did in fact have a liturgical function.

A surprisingly small quantity of pottery was recovered in the course of the excavations; not enough to fill a single standard storage box. The only material which comes from meaningful contexts was recovered from deep in the Nave trenches at approximately the ground surface prior to the construction of the 13th century structure. Their importance may be in contributing to tightening the dating of locally-made pottery, rather than contributing to a direct understanding of the Cathedral itself.

There were sufficient miscellaneous objects to fill three standard boxes. These include objects of glass, leather, shell, copper alloy, and fabric.

FIG. 11 The larger mortar with bronze rings and a base.

Almost all appear to be post-medieval in date and a large proportion are directly related to the burials. These include: 10 coins, a pair of small gold ear rings, 4 lead shot balls from a burial, a flint core, and 3 false teeth mounted on gold pins.

In addition to the miscellaneous finds there is one standard box of coffin decorations, mostly very fragmented. Apart from the nails the most common coffin fitting consisted of coffin handles (82 were recovered). The rest of the ironwork consists of nails, most of which presumably had been used in the manufacture of the coffin and the attachment of coffin furniture such as grip plates. The most interesting fittings consist of plates and borders of thin stamped sheet metal. Preliminary investigation suggests that these are typical of the early 19th century, when it was popular to decorate coffins with metal plates and cloth covers. The collection from the Cathedral includes examples which survive in sufficiently good condition to merit detailed analysis and description.

Continuing work - the post-excavation studies

The building remains in themselves are fairly straightforward, but they do contain a great deal of detail (eg masons' marks and re-used stones) and considerable evidence for building and re-building. The study of the *in situ* remains will also have to be integrated with the study of the re-used architectural evidence. On the basis of this, the early history of the building will require to be re-written. In addition to the new light which these substantial foundations will shed on the medieval and post-medieval period themselves, their discovery should also provide insights into the existing body of literary evidence pertaining to the Cathedral, most of which dates to the last few centuries.

A total of 77 burials were excavated of which the skeletons of 74 were retrieved for analysis. Of these 74 burials, 26 are complete (that is 70% or more of the skeleton is represented), 38 are partial (approximately 50-70% is represented) and 10 are incomplete (less than 50% is present).

Based upon a selective and critical assessment of the material, 66 (26 complete, 38 partial and 2 incomplete) burials can be meaningfully analysed.

Large quantities of disarticulated human bones were also recovered during the excavations. From the Nave enough bone to fill 55 standard boxes was recovered, while from the Crypt 9 boxes were filled. A very small percentage of this material is non-human, probably less than 1%. Most of this loose bone has very little archaeological value, except where the context can be closely defined as in the case of the 'shaft' graves in the Nave. There are also a few examples of pathological conditions which will be considered further.

The burial remains offer the possibility of constructing a reasonably well-dated history of burial rites from the high middle ages to the modern era. When this material is integrated with the available documentary evidence and the results of the skeletal analysis, it should provide an important synthesis of changing urban burial practices over an unusually long time span.

The most significant artefacts are the discarded and reused fragments of 12th-century masonry. These will require to be catalogued and described in detail, so that they may be used in the discussions of the original form of the 12th-century buildings. They also have a wider significance since such early painted material is rare. Once the painted stones have been conserved experts on medieval painting will be approached to contribute to their assessment.

Other artefacts are less critical for the discussion of the history of the building itself, but will nonetheless make an important contribution to understanding its use. These include the pair of bronze mortars and the pestle.

A programme of scientific analysis has been initiated to examine aspects of the material recovered by the excavations. Most of the work will focus on the human remains, but several important environmental samples were also recovered. Bulk soil samples were taken of the early features from the west end of the nave which predate the cemetery there to study both palaeobotanical remains and industrial residues.

Three samples of coffins from probable medieval burials were retained for C14 dating. Soil samples were taken from the colon region of six well preserved medieval burials following the method outlined by Reinhard et al (1992), which may allow the recovery of food residues.

The above account contains only the preliminary gleanings and once the post-excavation analysis has been completed we would hope greatly to enhance our understanding of the fabric of the various cathedrals and how they were used. It is our expectation that the results will make a substantial contribution to the history of the Cathedral as a whole.

ACKNOWLEDGEMENTS

The archaeological work could not have been conducted with such efficiency without the help of a superb team. In particular I would like to thank the key members of the excavation team Bob Will, Keith Speller, Sarah King and Mel Richmond. Richard Fawcett's enthusiam for the work was a great source of encouragement to us. Bob Hyslop, Historic Scotland's Cathedral architect, proved very flexible and created a situation in which the archaeology could proceed with a minimum of pressure. Alan Kilbride and Historic Scotland's Direct Labour team provided the essential help which allowed the excavation to run smoothly. I would also like to express my personal thanks to Ian Fisher, David Caldwell, John Durkan, Archie Duncan and Hugh McBrien who have all contributed valuable advice during the course of the excavation.

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